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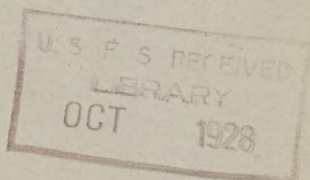
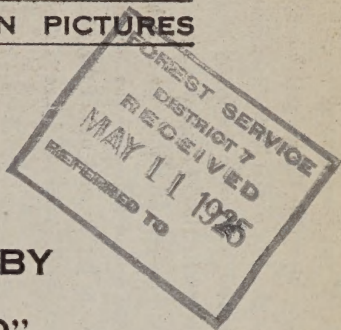


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**FOREST PRODUCTS RESEARCH IN PICTURES**

NO. 60

**WHAT IS MEANT BY  
"QUARTER-SAWED"**



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The accompanying drawing shows a quarter-sawed board and a plain-sawed board cut from an oak log.

The type of lumber called quarter-sawed is cut, so far as practicable, in the manner in which the upper board of the diagram is cut, with one edge at the growth center of the tree and the other at the bark. As a result the medullary rays – seen as fine white lines on the end of an actual log but represented on the log end in the diagram by radiating black lines – run practically parallel with the faces of the board. The medullary rays are horizontal strips of food-storing cells which extend radially through the wood toward the bark. Some of the rays are very minute and others are two inches or more in width from edge to edge up and down in the tree. They waver slightly from a true radial course. Hence the effect of cutting a truly quarter-sawed surface on an oak board is to cause these rays to dip in and out of the plane of the saw and appear as they do here in broad, light-colored flakes and patches. This is the prized “figure” of the quarter-sawed oak used for furniture and interior finish.

Actually it would be very wasteful to turn a log after sawing each board and thus make all boards truly quarter-sawed, as a thin wedge of wood would be wasted for each board cut. The smaller diagram shows how, in the common method of quarter-sawing, logs are halved lengthwise and successive eighths made into material more or less quarter-sawed by turning the log after sawing each eighth. Out of the whole log eight of the boards so produced have one face truly quarter-sawed.

The lower board of the diagram is plain-sawed. In cutting plain-sawed lumber – also known as slash-sawed and flat-grain lumber – all boards are cut with their faces tangent to the annual rings. As a result the medullary rays pass through most of the boards almost perpendicular to the faces and are seen only as very fine, narrow, streaks which form an insignificant part of the “grain.”

The hardwoods which are quarter-sawed for “figure” must show “figure” on 90 per cent of the surface of each board to qualify commercially as “quarter-sawed”. The quarter-sawed softwood of commerce, more commonly known as edge-grain or vertical-grain lumber, is that in which the medullary rays do not make an angle greater than, or the annual rings an angle less than, 45 degrees with the face of the board.

Oak and mahogany are the species most commonly quarter-sawed for the sake of beauty of grain. There are other reasons, however, for quarter-sawing these and other woods. Quarter-sawed lumber, because of the more uniformly distributed division of its surface between summerwood and the softer springwood, wears more evenly than plain-sawed lumber, it does not surface check so readily, it is less permeable to liquids, and it shows less shrinking and swelling in width and less warping than plain-sawed lumber.

